Mini-Review

# Management of Children and Adolescents with Gender Dysphoria

Edgardo Menvielle MD, MSHS [a], Veronica Gomez-Lobo MD [b,*]

[a] Children's National Medical Center, The George Washington University, Washington, DC
[b] Section of Pediatric and Adolescent Ob/Gyn, Washington Hospital Center/Children's National Medical Center, Georgetown University, Washington Hospital Center, Washington, DC

## Gender Identity Disorder

Gender Identity Disorder (GID) is a psychiatric diagnosis that applies to persons whose gender identity is different from their assigned gender both in individuals with Disorders of Sex Development (DSM IV, GID Not Otherwise Specified) and in sexually normal individuals (DSM IV, GID).[1] The core characteristics of patients diagnosed with GID include a strong and persistent cross-gender identification, persistent discomfort with his or her sex or sense of inappropriateness in the gender role of that sex, a preoccupation with getting rid of primary and secondary sex characteristics, and significant distress or impairment in social, occupational or other areas of functioning.[1] The defining characteristic of GID is gender dysphoria which includes discomfort with the individual's gender role and a wish to get rid of their sexual characteristics and to acquire the sexual characteristics of the other gender.

### *Diagnosis of Gender Identity Disorder*

The paradox of GID is that although it is a psychiatric diagnosis, the main elements of the treatment are somatic: helping the patient achieve their desired primary and secondary sexual characteristics through hormonal and surgical treatments.[2] The role of the mental health provider is to assist the patient by facilitating the gender role transition process through diagnosis and psychotherapy. The psychiatrist, psychologist, or other mental health professional, typically a subset specializing in patients with GID, first provides a comprehensive diagnostic evaluation. The diagnostic process should establish that the patient fulfills diagnostic criteria for GID and evaluates for concurrent mental health conditions which may interfere with the treatment (e.g., severe personality disorders), put the patient at risk for negative outcomes or regrets (e.g., delusional states) or require additional treatment (e.g., depression, anxiety, mood disorders, etc.). The mental health provider must also rule out disorders that may mimic GID such as cross-dressing without cross gender identity. Asperger and Autism spectrum disorders appear to be overrepresented among patients seeking gender reassignment or transition.[3] This issue has not yet been studied extensively. By itself a concurrent Asperger should not preclude gender transition, especially among patients in the upper end of the autism spectrum who have adequate levels of social and occupational functioning. However, these patients may need more mental health support because of their social disability.

### *Gender Transition*

Once the initial diagnosis is established, adults and mature adolescents are typically asked to participate in ongoing psychotherapy in order to extend the diagnosis period (when the clinician is not certain that the patient meets the diagnostic criteria), and/or to support the patient as she or he moves through the social and physical transition.[4] A gradual gender role transition allows patients to start adopting the wished-for role and appearance in anonymous or in intimate social settings first, and gradually expanding to other places such as the work space. A gradual transition allows for managing the many layers of potential obstacles that need to be worked through. Such a process also allows for minimizing the consequences if the patient changes his or her mind about the decision to fully transition and makes a reversal less taxing. Therefore hormone therapy is usually instituted after real life experience in the desired gender. And typically, decisions about surgery are postponed until the patient has reached legal adulthood age, has achieved a satisfying transition of social role, and has received a prolonged course of cross-gender hormones.[5]

### *Challenges Associated with Transition in Adolescence*

Although adolescents follow a similar transition path as adults, their management presents some unique characteristics. Adults often come to a decision to transition gender after having lived a significant portion of their adult life, formed long-term relationships and marriages, and established an occupational career. Patients thus face the complicated re-negotiation of these long term commitments in a new gender, which may result in problems in—or even the dissolution of—long term personal and occupational relationships. This set of potentially difficult challenges are not present in the same way for adolescents. Adolescents, however, also have to re-work their relationships with

The authors report no conflict of interest.

* *Address correspondence to:* Veronica Gomez-Lobo, MD, Director, Section of Pediatric and Adolescent Ob/Gyn Washington Hospital Center/Children's National Medical Center Professor of Clinical Ob/Gyn Georgetown University Washington Hospital Center 110 Irving Street, NW Rm. 5B41 Washington, D.C. 20010; Phone: 202-877-3029; fax: 202-877-2051

1083-3188/$ - see front matter 
doi:10.1016/j.jpag.2010.12.006

parents, siblings and friends and may face interpersonal stress and losses as well as peer bullying and harassment.[6] Prior to declaring a transgender identity, some adolescents may have had a history of childhood gender variance, but others do not have such a prior history. While in the first case parents may have to some extent prepared themselves, in the latter cases the patient may announce his or her desire for gender transition unexpectedly. Either scenario may precipitate an emotional crisis in the family.[7]

*Psychosocial Management of Adolescents with GID*

The psychosocial management of adolescents with GID must involve the parents.[7] Their initial reactions to the adolescent's announcement of wish for gender transition may include disbelief, panic, a sense of doom and disorientation (e.g., "I do not know what to say, what to do"). Parents may also blame themselves as they imagine that they could have somehow prevented their child from becoming transgender. A process akin to grieving a loss may ensue. Parents may feel that the child has changed in a radical manner even when the adolescent expresses that the feelings were present since childhood. The role of the mental health clinician in the initial diagnostic phase is to provide support to the parents while helping them to support their adolescent child. Once the diagnosis is clarified, the parents and the adolescent need to be informed of the treatment options available, of the risks involved (both medical and social) as well as future fertility options. The process of informing adolescents about treatment should include the possibility of pursuing social transition without medical transition, that is cross-dressing and cosmetic interventions (e.g. depilation) without hormones or surgery. Some individuals may choose to postpone or forgo hormonal or surgical interventions due to the risks involved. The psychosocial outcomes of adolescents who pursue hormonal gender reassignment, however, are believed to be good among teens who have been carefully selected.[8,9]

*Psychotherapy*

In addition to individual treatment, separate group sessions for the adolescents and the parents can be very useful. Processing experiences with the help of others in a similar situation allows parents and adolescents an opportunity to work though the challenges more effectively. In the case of the parents, the input provided by peers allows them to see themselves and their adolescent child in a more positive light. For adolescents, a group with peers helps them form emotional bonds with others facing similar experiences and provides feedback helpful in navigating personal and social challenges. Although specialized psychotherapists may not be available in many communities, some chapters of the national organization P-FLAG (Parents Families and Friends of Lesbian and Gays) offer support groups for families of transgender persons.

*Referral to Mental Health Care*

It is known that transgender-identified adolescents, as well as adolescents in general, may reject the suggestion of participating in ongoing psychotherapy.[10] A group, as opposed to individual therapy, may be a more acceptable option, because typically adolescents desire to connect with similar peers. Aside from the stigma attached to mental health treatment in general, the adolescent may reject therapy—or a referral to a mental health clinician for an assessment—because they fear that the therapist may try to dissuade them from transitioning or delay the transition therapy. It is not uncommon for patients with GID, and perhaps more so among adolescents, to be anxious to initiate hormone treatment without any delays. Therefore it is very important to explain to the adolescent and parents that a mental health referral is to help the patient achieve his or her goals in a safe manner.

**Hormonal Management Overview**

The clinician has two excellent guidelines to assist him/her in the hormonal management of children and adolescents with gender dysphoria: the World Professional Association for Transgender Health (WPATH) Standards of Care as well as the Endocrine Treatment of Transsexual Persons: An Endocrine Society Clinical Practice Guideline. The following management summary is based on these publications.[4,5] WPATH, formerly known as the Harry Benjamin International Gender Dysphoria Association, is a professional organization devoted to the understanding and treatment of gender identity disorders and the sixth version of the Standards of Care is easily available online.[5] The article from the Endocrine Society was published in September, 2009, and is an evidence-based guideline developed using the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) system to describe the strength of recommendations based on consensus process of committees. Members of The Endocrine Society, European Society of Endocrinology, European Society for Paediatric Endocrinology, Lawson Wilkins Pediatric Endocrine Society, and World Professional Association for Transgender Health commented on preliminary drafts of these guidelines.[4]

Prior to initiating therapy adults and adolescents must first fulfill eligibility criteria. Adults must fulfill DSM IV-TR or ICD-10 criteria for gender identity disorder or transsexualism; not suffer from psychiatric comorbidity that interferes with the diagnostic work-up or treatment; demonstrate knowledge and understanding of the expected outcomes of hormone treatment, as well as the medical and social risks and benefits; and have experienced a documented real life experience (RLE) of at least 3 months' duration or had a period of psychotherapy after the initial evaluation, usually a minimum of 3 months. Adolescents are eligible and ready for GnRH treatment if they: fulfill DSM IV-TR or ICD-10 criteria for GID or transsexualism; have experienced puberty to at least Tanner stage 2; (early) pubertal changes have resulted in an increase of their gender dysphoria; do not suffer from psychiatric comorbidity that interferes with the diagnostic work-up or treatment; have adequate psychological and social support during treatment; demonstrate knowledge and understanding of the expected outcomes of GnRH analog treatment, cross-sex hormone treatment, and sex reassignment

surgery, as well as the medical and the social risks and benefits of sex reassignment. Adolescents are eligible for cross-sex hormone treatment if they fulfill the criteria for GnRH treatment and are 16 years or older.[4]

Prior to initiating treatment in children and adolescents an extensive exploration of psychological, family, and social issues should be undertaken by a mental health professional with training in child and adolescent developmental psychopathology.[4,5] Given high rates of remission after the onset of puberty, complete social role change and hormone treatment in prepubertal children with GID is not recommended.[4] The WPATH Standards of Care state that one letter from a mental health professional is required for instituting hormone therapy or breast surgery and two letters are required for genital surgery (or one letter signed by two mental health professionals). This letter must state: The patient's general identifying characteristics; the initial and evolving gender, sexual, and other psychiatric diagnoses; the duration of their professional relationship including the type of psychotherapy or evaluation that the patient underwent; the eligibility criteria that have been met and the mental health professional's rationale for hormone therapy or surgery; the degree to which the patient has followed the Standards of Care to date and the likelihood of future compliance; whether the author of the report is part of a gender team; and that the sender welcomes a phone call to verify the fact that the mental health professional actually wrote the letter as described in this document.

In addition, WPATH Standards state that the physician providing hormonal treatment and medical monitoring need not be a specialist in endocrinology, but should become well-versed in the relevant medical and psychological aspects of treating persons with gender identity disorders; the medical record must contain a written informed consent document reflecting a discussion of the risks and benefits of hormone therapy; and physicians have a wide latitude in what hormone preparations they may prescribe and what routes of administration they may select for individual patients.[5]

## Puberty Suppression

Both sets of recommendations state that children who fulfill readiness criteria undergo puberty suppression. These criteria include, as stated above, an intense pattern of cross-sex and cross-gender identity and aversion to expected gender role behaviors; sex and gender discomfort has significantly increased with the onset of puberty; the family consents and participates in the therapy.[4,5] It is recommended that such treatment begin as the individual reaches Tanner 2 development. In female-to-male (FTM) individuals breast budding is the best time to initiate therapy in order to avoid non-reversible pubertal development of large breasts. In male-to-female (MTF) puberty suppression is initiated when testicular volume reaches 4 ml in order to avoid irreversible characteristics such as Adam's apple, low voice, male bone configuration, tall stature, and male hair pattern.

### *Medications*

Fully reversible hormonal therapy includes gonadotropins releasing hormone (GnRH) analogs, medroxyprogesterone, anti-estrogens, and anti-androgens. Generally, long acting GnRH analogs are used as these cause regression of initial pubertal development and are fully reversible. Unfortunately, they are very expensive and little is known about the long term effects on bone density and psychological development. Medroxyprogesterone is occasionally used as it is cheaper but it is less effective than GnRH analogs.

### *Counseling about Fertility and Possible Effects*

The Endocrine Society Treatment Guidelines recommend that transsexual individuals should be informed and counseled regarding options for fertility prior to initiation of puberty suppression and treatment with sex hormones.[4] There are no formally evaluated decision aids for this counseling but patients and their families may be counseled that GnRH analogs are fully reversible. In male-to-female patients one can counsel that sperm production can be initiated following GnRH suppression and before adding estrogen. There is no data regarding time required for spontaneous ovulation in girls or spermatogenesis in boys after GnRH treatment.

### *Monitoring*

Young persons receiving long acting GnRH analogs should be monitored regularly. Every 3 months the clinician needs to evaluate height, weight, sitting height, and Tanner stage as well as psychological health. In addition, lab work should be performed: Serum LH, FSH, estradiol and testosterone; this would guide treatment such as more frequent injections or delay in implant removal. The following tests should be performed yearly: renal and liver function, lipids, glucose, insulin, HbA1c, bone density with DEXA, and bone age on X-ray of left hand.[4]

## Initiation of Puberty after Suppression

The Endocrine Society Treatment Guidelines recommend that pubertal development of the desired, opposite sex be initiated about the age of 16, using gradually increasing dose of cross-sex steroids.[4] This recommendation was based on expert opinion and minimal evidence. Treating endocrinologists must confirm the diagnosis of GID and eligibility and readiness criteria for the endocrine phase of gender transition. Medical conditions that can be exacerbated by hormone depletion and cross-sex hormone treatment need to be evaluated and addressed prior to initiation of treatment. Testosterone is used for female-to-male (FTM) and estrogen for male-to-female (MTF) transsexuals. A similar dose scheme as in other hypogonadal individuals is used and often GnRH analog is continued until a gonadectomy is performed. There is little experience with creams and patches for inducing puberty.

**Table 1**
Monitoring during Hormone Therapy. Adapted From Endocrine Society Clinical Practice Guideline[4]

| | During GnRH Analog Rx and Puberty Induction | FTM | MTF |
|---|---|---|---|
| In the first year every 2–3 months | Weight, height, sitting height, Tanner stage, psychological health, LH, FSH estradiol , testosterone | Weight, BP, BMI testosterone, estradiol, CBC, liver function | Weight, BP, BMI, testosterone (until <55 mg/ml), Estradiol, if on spironolactone check electrolytes for potassium, Prolactin |
| After the first year every 6–12 months | Weight, height, sitting height, Tanner stage, psychological health, renal and liver function, lipids, fasting glucose, HgA1c, DEXA, left hand bone age on X-ray until peak bone mass | Weight, BP, BMI, CBC, liver function, lipids, fasting glucose (if family history), HgA1c if diabetic | Weight, BP, BMI, Prolactin |
| Other | | Pap smear based on ACOG guidelines Mammogram based on ACS guidelines DEXA at baseline and later if risk factors for osteoporosis | Routine cancer screening, mammogram based on ACS guidelines, DEXA at baseline and later if risk factors |

*Medications*

*Cross-Sex Hormone Treatment of Male-to-Female Transsexual*

Induction of puberty in MTF transsexuals treated with GnRH analogs is usually performed by giving increasing doses of 17-beta estradiol, beginning with 5 μg/kg/day and increasing by 5 μg/kg/day every six months until a final dose of 2 mg/day is reached. To prevent extreme tall stature: estrogen may be increased more rapidly, may be started before age 16, or estrogen may be prescribed in growth-inhibiting doses. It is important to discuss with the family the fact that prolonged exposure of the testes to estrogen has been associated with testicular damage, therefore preventing future fertility.[4]

Consideration of medical conditions which may pose serious risk to the patients if treated with estrogen must be evaluated. Patients with a history of venous thromboembolic disease are at very high risk of serious complications if treated with estrogen. In addition, persons with macroprolactinoma, severe liver dysfunction with transaminases greater than three times upper limit of normal, breast cancer, coronary artery disease, cerebrovascular disease, and severe migraine headaches are at moderate to high risk of serious complications if treated with estrogen.

*Cross-Sex Hormone Treatment of Female-to-Male Transsexual*

Induction of puberty in FTM transsexuals treated with GnRH analogs is usually performed by giving increasing doses of testosterone. Testosterone esters are begun at a dose of 25 mg per meter squared intramuscularly every 2 weeks, and increased by 25 mg per meter squared every six months until total testosterone levels around 200–400 ng/dL are reached. Effect of prolonged treatment with exogenous testosterone on ovarian function is uncertain and though pregnancy has been reported, families should be made aware that treatment with testosterone may preclude future fertility. GnRH suppression halts growth; therefore to achieve maximum height slow introduction of androgens is prescribed in order to mimic the pubertal growth spurt. If the patient desires higher stature he may be treated with oxandrolone.[4]

As previously stated medical conditions that may be exacerbated by testosterone therapy must be evaluated and addressed. Patients with breast and ovarian cancer or erythrocytosis are at very high risk of serious adverse events if treated with testosterone. In addition, those with liver disease with transaminases greater than 3 times above normal are at moderate to high risk of serious adverse events.

*Monitoring*

During induction of puberty, anthropometric and laboratory measurements should be monitored every three months in the first year (Table 1). These include height, weight, sitting height, Tanner stages, luteinizing hormone (LH), follicle stimulating hormone (FSH), estradiol and testosterone. It is recommended that every year renal and liver function, lipids, glucose, insulin, glycosilated hemoglobin (HbA1c), bone density using dual energy X-ray absorptiometry (DEXA), and bone age on X-ray of the left hand be performed. These parameters should be measured also at long term and for bone development until the age of 25–30 years or until peak bone mass has been reached.[4]

## Cross-Sex-Hormones in Post-Pubertal Gender Dysphoria Persons

Often patients do not seek medical therapy until after puberty. In these cases therapy with cross-sex steroids may be initiated after age 16. Prior to initiating treatment an extensive exploration of psychological, family and social issues should be undertaken by a mental health professional with training in child and adolescent developmental psychopathology, the treating physician should confirm the diagnosis of GID and a letter from a mental health professional should be provided as detailed above.

*Medications*

*Female-to-Male*

Female-to-male transsexuals who are 16 or older may be treated with parenteral or transdermal testosterone preparations to achieve testosterone in the normal male range (320–1000 ng/dL). GnRH analogs or depot-medroxyprogesterone may be used to stop menses prior to testosterone treatment. It is important to discuss with the family that there may be temporary or permanent decreased fertility.[4]

In the United States testosterone enanthate or cypionate as well as testosterone gel 1% and patch are available. The parenteral testosterone may be administered as 100–200 mg IM every 2 weeks or 50% weekly. Testosterone

transdermal patch is administered 2.5–7.5 mg/day and the gel 2.5–10 g/day. Anecdotally, however, transdermal preparations often do not suppress menstruation. Oral and alternative parenteral formulations are available outside of the United States.[4]

The following masculinizing effects of the testosterone can be noted at 3-6 months: oily skin and acne, fat redistribution, cessation of menses, clitoral enlargement, and vaginal atrophy. At 6–12 months the following changes may noted: facial and body hair growth, increased muscle mass, scalp hair loss, and deepening of the voice.

Reductions in testosterone doses post-oophorectomy should be considered, taking into account the risks of osteoporosis. Lifelong maintenance treatment with testosterone is usually required.

*Male-to-Female*

Male-to-female transsexuals are generally treated with a combination of anti-androgens and estrogen. Anti-androgens are given so as to maintain serum testosterone levels in the normal female range (50 ng/dL). In the United States spironolactone is most often used, but cyproterone acetate and GnRH agonists may be used. Estrogen can be administered by oral, transdermal, or parenteral route and serum estradiol levels should be maintained around 200 ng/dL. It is important to remember that conjugated estrogens or synthetic estrogens can not be monitored by blood tests; hence, 17 beta estradiol is generally used. Doses of estradiol are as follows: oral 2.0–6.0 mg/day and patch 0.1–0.4 mg twice weekly.[4]

Initial effects within a few months of this therapy are decreased libido and decreased frequency and quality of erections. At about 3-6 months decreased muscle mass and strength, redistribution of body fat, softening and decreased oiliness of the skin, breast growth, and decreased testicular volume may be observed. Decreased terminal hair growth is noted about 6–12 months after initiating treatment, but methods to remove existing hair such as waxing, shaving, and electrolysis may need to be used concomitantly. It is unknown when decreased sperm production begins and maximal effect is not seen until at least three years of treatment. Scalp hair loss and deepening of the voice are not reversible with the feminizing treatment used in MTF transsexuals.

When treating individuals with estrogen the risk of venous thromboembolism must be assessed. As stated earlier, persons with a history of thromboembolic disease are at very high risk of serious complications from such treatment. Currently, thrombophilia screening should be restricted to those with personal or family history of thrombosis and cessation of tobacco use should be strongly encouraged.[4]

Estrogen doses in post-orchiectomy patients can often be reduced and still maintain feminization. However, lifelong maintenance treatment is usually required.

*Possible Long Term Effects*

Treatment of transsexual patients with sex steroids poses the same risks as in hormone replacement for biological males and females. This risk is increased with supra-physiologic or inadequate doses, and thus the treating physician needs to assure compliance and monitor hormone levels. Hormone treated transsexuals should be evaluated for cardiovascular risk factors, cancer and other preventive care as in the general population.

*Monitoring*

*Female-to-Male*

It is recommended that the treating physician evaluate such patients every 2–3 months in the first year and then 1–2 times per year. Testosterone may place the patient at risk for erythrocytosis, liver dysfunction, hypertension, excessive weight gain, salt retention, lipid changes, excessive or cystic acne, and adverse psychological changes.

Serum testosterone should be measured until levels are in the normal physiologic male range. During the first 3–9 months of testosterone treatment, total testosterone levels may be high although free testosterone levels are normal due to high sex hormone binding globulin levels in some biological women. Estradiol levels should be measured during the first six months of testosterone treatment or until there has been no uterine bleeding for six months. Estradiol levels should be $<50$ pg/ml. In the first year the patient should have complete blood count and liver enzymes at baseline and every 3 months for the first year then 1-2 times a year. Weight, blood pressure, lipids, fasting blood sugar (if family history of diabetes) and Hg A1c (if diabetic) should be monitored at regular visits once or twice a year.[4]

Adequate levels of testosterone must be administered in order to maintain bone mineral density. Hence, in addition to monitoring testosterone levels, if there are risk factors present then bone mineral density testing should be performed at baseline. In individuals at low risk, screening for osteoporosis should be conducted at age 60 or in those who are not compliant with hormone therapy.

Female to male transsexuals may not undergo hysterectomy or mastectomy. Thus if cervical tissue is present, then pap smears should be performed as recommended by American College of Obstetricians and Gynecologists (ACOG). And if mastectomy is not performed, then consider mammography screening as recommended by American Cancer Society (ACS).

*Male-to-Female*

In MTF transsexuals care must be taken to avoid high estrogen level due to risk of thrombosis, liver dysfunction and the development of hypertension. In addition, it is important to keep in mind that estrogen correlates with bone mineral density and that patients often discontinue therapy for prolonged periods of time even after gonadectomy. Finally, up to 20% of MTF treated with estrogens may have elevations in prolactin and pituitary enlargement.

Thus the patient should be evaluated every 2–3 months in the first year and then 1–2 times per year for appropriate signs of feminization and for development of adverse reactions. Serum testosterone and estradiol should be measured every 3 months. Serum testosterone levels should be $<55$

ng/mL and serum estradiol should not exceed the peak physiologic range for young healthy females, with ideal levels approximately 200 ng/ml.[4] For individuals on spironolactone, serum electrolytes particularly potassium should be monitored every 2–3 months initially in the first year. Prolactin levels should also be monitored during these visits and once a year subsequently.[4]

These individuals should undergo routine cancer screening as recommended in non-transsexual individuals.

The treating physician should consider bone mineral density testing at baseline if risk factors for osteoporotic fracture are present (e.g., previous fracture, family history, glucocorticoid use, prolonged hypogonadism). In individuals at low risk, screening for osteoporosis should be conducted at age 60 or in those who are not compliant with hormone therapy.

## Surgery

Consider sex reassignment surgery only after the physician responsible for the endocrine transition therapy and the mental health professional find surgery advisable. In general referral for surgery is made after completion of at least 1 year of consistent and compliant hormone treatment. The physician responsible for the endocrine treatment needs to medically clear individuals for sex reassignment surgery and collaborate with the surgeon regarding hormone use during and after surgery. The WPATH Standards of Care recommend two letters from mental health professionals for genital surgery (or one letter signed by two mental health professionals).[5]

Though permanent treatment such as surgery is deferred until legal age of majority in the patient's nation or 18 in the United States, mastectomy for FTM transsexuals is sometimes considered at an earlier age. The appearance of breasts may severely affect a FTM transsexual's daily life, hence only one health care professional need write a letter recommending mastectomy and patients may be referred after age 16.[4,5]

Female-to-male transsexuals who do not undergo total hysterectomy and bilateral salpingo-oophorectomy are at risk for endometrial, ovarian and cervical cancer. There are no cases of endometrial cancer reported in FTM transsexuals and most specimens after testosterone therapy reveal atrophy. There is a theoretical risk, however, that aromatization of testosterone to estradiol may increase the risk of endometrial cancer. Androgen receptors increase in the ovaries after long term treatment with testosterone and cases of ovarian cancer have been reported. Often such patients find it very difficult to obtain gynecologic care and the Endocrine Treatment of Transsexual Persons states that the risks of not obtaining such care outweigh the risks of surgery, i.e. total hysterectomy and salpingo-oophorectomy.[4]

## Conclusions

Patients with gender identity disorder deserve health care providers who are sensitive to their unique difficulties as well as knowledgeable regarding the appropriate medical management. Fortunately providers currently have two excellent guidelines to help them in the care of these individuals. These guidelines are summarized above.

## References

1. American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders, (4th ed, text revised). Washington, DC, Author, 2000
2. Hill DB, Rozanski C, Carfagnini J, et al: Gender identity disorder in children and adolescents: A critical review. Int J Sex Health 2007; 19:95
3. de Vries AL, Noens IL, Cohen-Kettenis PT, et al: Autism spectrum disorders in gender dysphoric children and adolescents. J Autism Dev Disord 2010; 40:930
4. Hembree WC, Cohen-Kettenis PT, Delemarre-van de Waal HA, et al: Endocrine treatment of transsexual persons: an Endocrine Society clinical practice guideline. J Clin Endocrinol Metab 2009; 94:3132
5. World Professional Association for Transgender Health: Standards of Care for Gender Identity Disorders, (6th version, 2001). Available: http://www.wpath.org/publications_standards.cfm. Accessed
6. Pleak RR: Formation of transgender identities in adolescence. J Gay Lesbian Mental Health 2009; 13:282
7. Lev AI, Transgender emergence: Therapeutic guidelines for working with gender variant people and their families. New York, Haworth, 2004
8. Cohen-Kettenis PT, van Goozen SH: Sex reassignment of adolescent transsexuals: a follow-up study. J Am Acad Child Adolesc Psychiatry 1997; 36:263
9. Smith YL, Van Goozen SH, Kuiper AJ, et al: Sex reassignment: outcomes and predictors of treatment for adolescent and adult transsexuals. Psychol Med 2005; 35:89
10. Zucker KJ, Cohen-Kettenis PT: Gender identity disorders in children and adolescents. In: Rowland DL, Incrocci L, editors. The Handbook of Sexual and Gender Identity Disorders. Hoboken, NJ, John Wiley & Sons, 2008, pp 376–422